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STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF LAND/NOISE POLLUTION CONTROL

GROUNDWATER WITHDRAWALS FROM
AQUIFERS IN ILLINOIS
WITH EMPHASIS ON
PWS WELLS

by
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Chesterian, Valmeyeran, and Silurian-Devonian are primarily used in single aquifer wells and the remaining aquifers are most often used in multiple aquifer wells.

Description of Aquifers Utilized by PWS Wells

The following is a brief discussion of the aquifers open to PWS wells (Tables 1 through 13, and 15, Appendix I). The location of the PWS wells open to a single aquifer is shown on Plates 1 through 12 (Appendix II). These plates also include the areal distribution of aquifers, and the approximate location where formation waters contain 10,000 mg/l TDS. The location of PWS wells open to multiple aquifers is shown on Plate 13.

The aquifers in the State can also be grouped as the sand and gravel aquifers (Quaternary and Cretaceous-Tertiary) and the bedrock aquifers. Quaternary aquifers primarily consist of unconsolidated sand and gravel of glacial origin. The sand and gravel are found in outwash plains, valley trains, and to a limited extent, in till deposits. Along the major streams, the sand and gravel has an alluvial origin. The Quaternary aquifers yield water to wells in most of Illinois. A few PWS wells obtain water from the Cretaceous-Tertiary aquifer in southern Illinois.

The bedrock aquifers, except Pennsylvanian, Valmeyeran, and Chesterian aquifers, are utilized in the northern third of Illinois by PWS wells. Of the bedrock aquifers available, the Silurian-Devonian aquifer provides ground water in three small areas in the central, western, and southern Illinois (TACWR, 1967). The Valmeyeran and Chesterian aquifers are utilized in western and south-southwestern Illinois. Pennsylvanian sandstone aquifers, which are less occurring than the shales in the System, occur in many parts of the State as channel and sheet deposits. Pennsylvanian aquifers have limited use as water supply source due to the mineralized water content at relatively shallow depths and limited well yields.

Where confining layers are missing, the aquifers are hydrologically connected and function as a hydrostratigraphic unit. This situation occurs between the Quaternary and upper bedrock aquifers, as well as Cambrian-Ordovician aquifers in the northern third of the State.



The following is a brief discussion of the aquifers in ascending order:

Elmhurst-Mt. Simon: This aquifer is limited in use at the northern one-fourth of the State and to 200 to 300 feet of depth because water quality degrades at accelerating rates with increased depths and towards the center of the Illinois Basin. No PWS well was found to be withdrawing water from this aquifer alone; however, 106 PWS wells in 10 counties were found to be utilizing this aquifer in combination with



Table 1. Quaternary aquifer, public water supply wells (con't)

County	Pumping facility	Population (pop./yr)	Average daily pumpage of facility (gpd/yr)	No. of wells	Well location (sec.,T/R)	Well depth (feet)	Well yield (gpm)	Remarks
Washington	Okawville	1,276/73	66,600/75	2	4,1S-4W	69-70	50-70	
White	Carmi	6,033	671,000/76	4	11,14,5S-10E	90-99	500	
	Crossville	860	77,000/77	2	29,4S-10E	50-64	200	
	Mill Shoals	292	18,000/75	4	31,3S-8E 6,4S-8E	53-91	8-40	
	Norris City	° 1,750	200,000/80	2	31,6S-10E	82-110	275-500	Surface water for emergency use. Also supplies Broughton & Dale P.W.D.
Whiteside	Albany	942	86,500/76	2	35,21N-2E	75-80	100-120	
	Erie	1,566	* 130,000/77	1	6,19N-4E	172	400	See table 13
	Rock Falls	10,287	955,000/76	2	33,21N-7E	70-136	1000	
	Tampico	838	80,000/77	2	14,19N-6E	53-173	200	
Will	Joliet	80,378	* 10,800,000/77	5	5,8,35N-11E 32,36N-11E	83-113	600-1200	See table 13
Winnebago	Loves Park	12,390	* 2,519,000/76	2	6,7,44N-2E	190	2180-2280	See table 8. Indus- try uses 1.757 MGD
	North Park P.W.D.	18,500/76	1,506,000/76	3	25,30,45N-2E	195-240	1250-3500	
	Rockford	155,000/79	* 33,249,000/79	11	1,15,23,43N-1E 13,23,26,44N-1E 18,44N-2E 36,45N-1E	93-245	1700-5500	See table 13

Table 6. Silurian-Devonian aquifer, public water supply wells (con't)

County	Pumping facility	Population (pop./yr)	Average daily pumpage of facility (gpd/yr)	No. of wells	Well location (sec.,T/R)	Well depth (feet)	Well yield (gpm)	Remarks
Will	Elwood	794	80,000/78	3	29,34N-10E	230-300	60-90	
	Frankfort	2,325	630,000/79	3	21,28,35N-12E	315-433	200-700	
	Frankfort Square Subd.	3,273/77	280,000/77	2	13,35N-12E	500-505	600-1000	
	Ingall's Park Subd. (E. of Joliet)	805/79	* 46,600/79	1	13,35N-10E	305	100	See table 7
	Lockport	9,985/78	*1,200,000/78	1	19,36N-10E	330	900	See table 13
	Lockport Hts. Sanitary Dist.	1,057/79	96,000/79	3	7,36N-11E	220-297	70-100	
	Manhattan	1,530	165,000/78	3	17,20,34N-11E	107-187	150-290	
	Mokena	1,643	245,000/79	2	8,35N-12E	225-417	400-685	
	Monee	940	65,000/77	2 (1)	21,34N-13E	491-494	550-700	
	New Lenox	2,855	400,000/78	4 (1)	16,21,28, 35N-11E	300-334	190-300	
	Park Forest South	1,748	500,000/79	4	13,16,17, 34N-13E	457-499	600-1000	
	Peotone	2,345	500,000/78	3 (1)	24,33N-12E	135-300	350-750	
	Preston Utility Co. (S.E. of Joliet)	1,925/78	180,000/78	1	27,35N-10E	248	300	
	Prestwick Utility Co. (E. of Frankfort)	570/78	150,000/78	2 (1)	25,35N-12E	370	175-600	

Table 7. Galena-Platteville aquifer, public water supply wells

County	Pumping facility	Population (pop./yr)	Average daily pumpage of facility (gpd/yr)	No. of wells	Well location (sec., T/R)	Well depth (feet)	Well yield (gpm)	Remarks
Alexander	Thebes	442	25,000/74	1	8,15S-3W	300	80	
Carroll	Shannon			(1)	19,25N-7E	244	100	See table 13
Cook	Buffalo Grove (Lake Co.)	11,799	* 1,570,000/74	1	4,42N-11E	510	200	See table 13 (Lake and Cook Co.)
DeKalb	Waterman	990	* 104,100/76	1	16,38N-4E	400	180	See table 1
Grundy	Coal City	3,040	* 421,000/77	1	2,32N-8E	360	390	See table 13
81	Ridgecrest Utility (Subdivision)	567/74	23,000/72	1	26,34N-7E	650	150	
Henderson	Biggsville	391	* 60,000/71	1	17,10N-4W	950	250	See table 13
McDonough	Bardolph	331	15,000/76	1	Unknown	1150	50	
Warren	Kirkwood	817	* 46,000/77	1	17,10N-3W	1069	35	See table 13
Whiteside	Lyndon	673	36,000/77	2	15,20N-5E	243-250	150-180	
Will	Ingall's Park Subd. (E. of Joliet)	805/79	* 46,600/79	1	13,35N-10E ?	700	120	See table 6

Table 13. Public water supply wells open to multiple aquifers (con't)

County Pumping facility	Population (pop./yr.) Average daily pumpage (gpd/yr)	Location (Sec,T/R)	No. of wells	Aquifers												Minor aquifers			Well yield(s) (gpm)	Well depth(s) (ft.)	Remarks	
				Q	K - T	P e n	M C h	M V a	S - D	G - P	G- St P	E - P	I - G	F- Mt S	M a q	P d u C	F					
Stephenson																						
Winslow	330 43,000/77	22,29N-6E	1								1					1			500	355		
Warren																						
Alexis	946 72,000/77	1,12N-2W	2 (1)						2	2	2					1			50-290	1200-1215		
Kirkwood	817 * 46,000/77	17,10N-3W	1						1	1	1								80	215	See table 7	
Little York	297 * 35,600/77	20,12N-3W	1						1	1									95	872	See table 6	
Mommouth	11,022 2,300,000/77	19,29,32, 11N-2W	5							4	3	5	5			5	5		1000	2445-2465		
White																						
Springerton	228 15,000/75	1,4S-7E	2	2		2													14-20	110-120		
Whiteside																						
Erie	1,566 * 130,000/77	6,19N-4E	1						1	1									100	567	See table 1	
Fulton	3,630 * 343,000/77	28,22N-3E	3 (1)	1					1	2		1	2	1		1	1		190-600	1260-1943		
Morrison	4,387 971,000/77	18,21N-5E	4							4	2	4	4	1		4	4		250-1075	1625-2048		
Sterling	16,113 2,021,000/74	22,21N-7E	5	1					1	4	4		4			4			440-590	1430-1830		
Will																						
Braidwood	2,323 340,000/79	8,32N-9E	2							2	2								120-200	846-1025		
Joliet	80,378 * 10,800,000/77	6-11,35N-9E 2,7,9,14- 16,35N-10E 25,36N-9E 16,36N-10E 31,36N-11E	11 (1)							10	10	11	11			5	9 11		900-1500	1556-1701	See table 1	